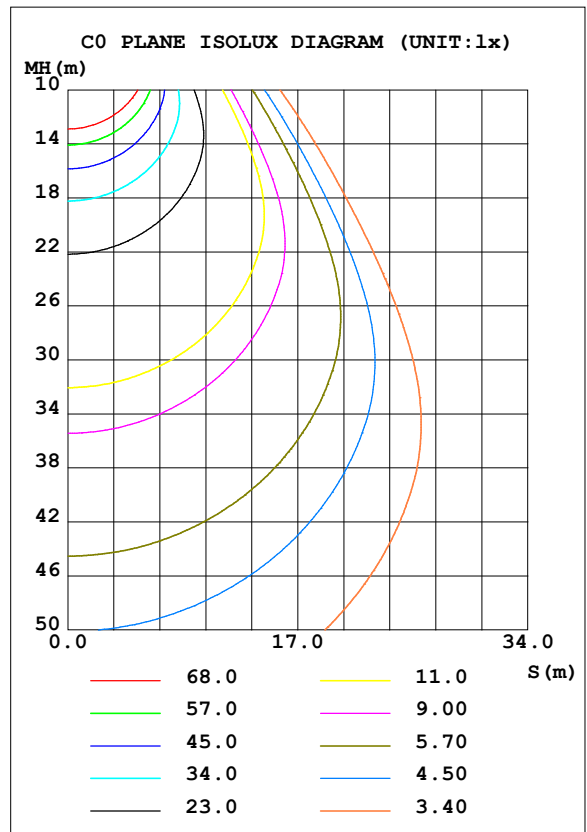
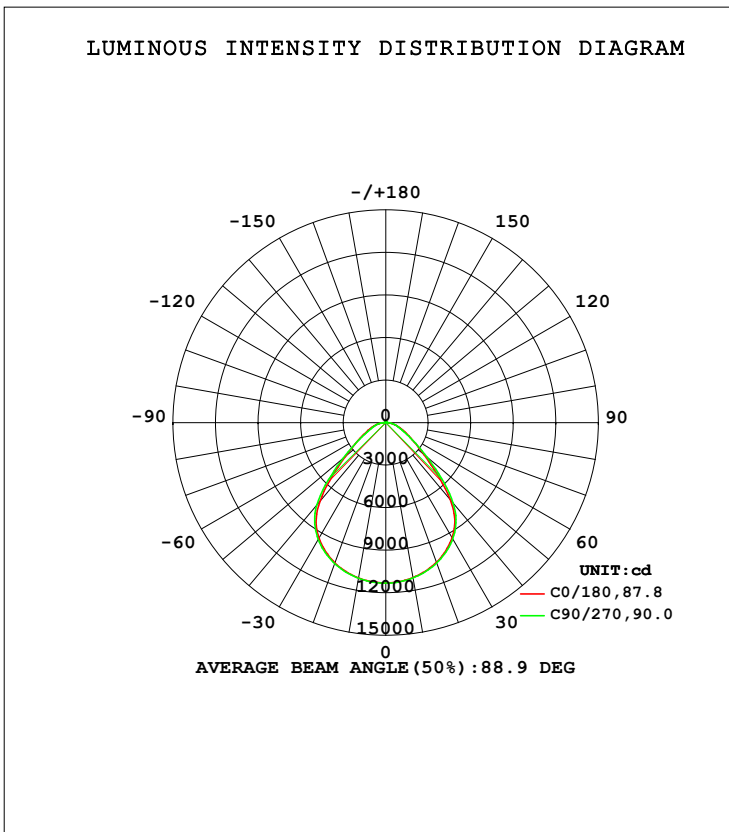


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 150.20 lm/W			
MODEL		I _{max} (cd)	11322	S/MH (C0/180)	1.24
NOMINAL POWER (W)	160	LOR (%)	100.5	S/MH (C90/270)	1.25
RATED VOLTAGE (V)	120	TOTAL FLUX (lm)	23374	<input type="checkbox"/> UP, DN (C0-180)	0.5, 49.4
NOMINAL FLUX (lm)	23257.7	CIE CLASS	DIRECT	<input type="checkbox"/> UP, DN (C180-360)	0.5, 50.1
LAMPS INSIDE	1	<input type="checkbox"/> up (%)	1.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	<input type="checkbox"/> down (%)	99.5	CIBSE SHR MAX	1.30



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 15DEG
 Operators: lianghaizhu
 Test Date: 2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity: 56%
 Test Distance: 6.500m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

mm	C0	C45	C90	C135	C180	C225	C270	C315	mm	□ zone	□ total	%lum, lamp
10	1109	1109	1112	1115	1112	1115	1114	1111	0- 10	1071	1071	4.58,4.6
20	1048	1047	1053	1056	1052	1058	1057	1049	10- 20	3069	4140	17.7,17.8
30	935.9	936.3	945.5	950.0	941.8	952.4	952.3	938.9	20- 30	4628	8767	37.5,37.7
40	706.3	713.5	740.3	746.1	722.6	753.5	756.6	719.2	30- 40	5337	14104	60.3,60.6
50	354.6	356.2	382.2	390.7	373.4	395.6	395.0	360.9	40- 50	4206	18310	78.3,78.7
60	187.7	176.0	179.0	193.1	196.6	192.8	184.7	179.7	50- 60	2388	20698	88.6,89
70	104.0	100.6	97.68	110.2	110.0	109.7	99.26	103.1	60- 70	1383	22081	94.5,94.9
80	45.83	47.16	50.40	55.46	51.48	55.83	51.62	48.00	70- 80	816.4	22898	98,98.5
90	0.7760	0.8056	0.8112	1.023	0.8889	1.065	0.8309	0.8399	80- 90	250.0	23147	99,99.5
100	1.272	1.329	1.339	1.251	1.333	1.336	1.410	1.423	90-100	11.41	23159	99.1,99.6
110	2.063	2.133	2.167	2.031	2.173	2.176	2.276	2.278	100-110	18.28	23177	99.2,99.7
120	3.074	3.152	3.201	3.038	3.195	3.183	3.315	3.299	110-120	26.32	23203	99.3,99.8
130	4.209	4.267	4.346	4.155	4.348	4.305	4.469	4.424	120-130	33.52	23237	99.4,99.9
140	5.276	5.332	5.401	5.245	5.455	5.402	5.555	5.504	130-140	37.57	23275	99.6,100
150	6.237	6.314	6.373	6.248	6.463	6.444	6.566	6.531	140-150	36.94	23312	99.7,100
160	7.295	7.353	7.431	7.243	7.552	7.480	7.640	7.606	150-160	31.87	23343	99.9,100
170	8.327	8.311	8.401	8.237	8.486	8.410	8.556	8.487	160-170	22.40	23366	100,100
180	8.922	8.830	8.934	8.830	8.916	8.838	8.935	8.833	170-180	8.230	23374	100,101
DEG	LUMINOUS INTENSITY:×10cd									UNIT:lm		

Conical surface Flux(90deg): 16471 lm

%lum = 70.5%

%lamp = 70.8%

Conical surface Flux(120deg): 20698 lm

%lum = 88.6%

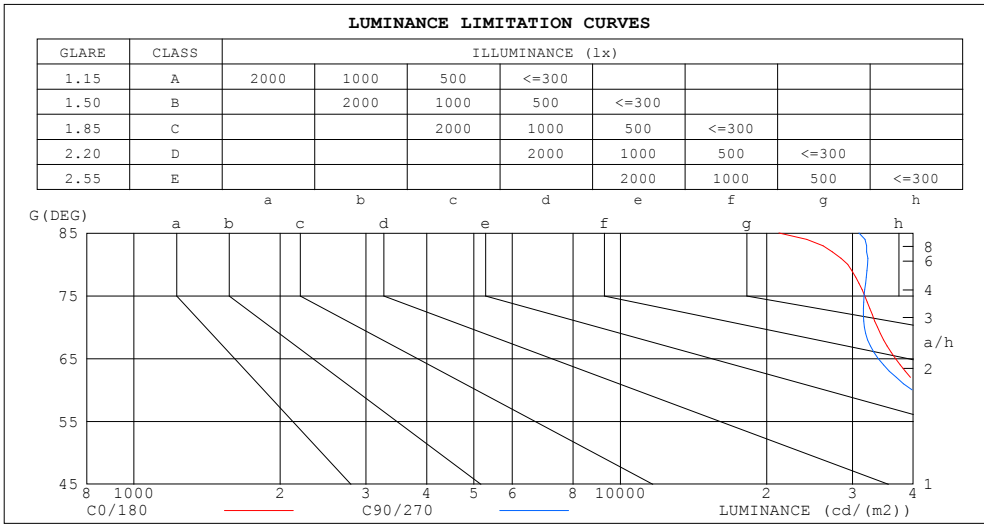
%lamp = 89.0%

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:15DEG
Operators:lianghaizhu
Test Date:2022-12-31

□ Range: 0 - 180DEG
□ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
Humidity:56%
Test Distance:6.500m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	21171	30955
80	29324	32250
75	31809	31704
70	33773	31734
65	36784	33902
60	41719	39767
55	49330	50225
50	61301	66061
45	80286	87533

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:

<input type="checkbox"/> cc	80%	70%	50%	30%	10%	0
<input type="checkbox"/> w	50% 30% 10%	50% 30% 10%	50% 30% 10%	50% 30% 10%	50% 30% 10%	0
<input type="checkbox"/> fc	20%	20%	20%	20%	20%	0
RCR	RCR:Room Cavity Ratio		Wall Exitance Coefficients (WEC)			
0.0						
1.0	.258 .147 .046	.251 .143 .045	.237 .136 .043	.225 .130 .042	.213 .124 .040	
2.0	.246 .135 .041	.240 .132 .041	.228 .127 .039	.217 .122 .038	.207 .117 .037	
3.0	.231 .123 .037	.226 .121 .036	.215 .117 .035	.206 .113 .035	.197 .109 .034	
4.0	.217 .113 .033	.212 .111 .033	.203 .107 .032	.194 .104 .031	.186 .101 .031	
5.0	.203 .103 .030	.199 .102 .030	.191 .099 .029	.183 .097 .029	.176 .094 .028	
6.0	.191 .096 .027	.187 .094 .027	.180 .092 .027	.173 .090 .026	.166 .088 .026	
7.0	.179 .089 .025	.176 .088 .025	.169 .086 .025	.163 .084 .024	.158 .082 .024	
8.0	.169 .083 .023	.166 .082 .023	.160 .080 .023	.155 .078 .023	.150 .077 .022	
9.0	.160 .077 .022	.157 .077 .021	.152 .075 .021	.147 .074 .021	.142 .072 .021	
10.0	.152 .073 .020	.149 .072 .020	.144 .071 .020	.140 .069 .020	.135 .068 .020	

<input type="checkbox"/> cc	80%	70%	50%	30%	10%	0
<input type="checkbox"/> w	50% 30% 10%	50% 30% 10%	50% 30% 10%	50% 30% 10%	50% 30% 10%	0
<input type="checkbox"/> fc	20%	20%	20%	20%	20%	0
RCR	RCR:Room Cavity Ratio		Ceiling Cavity Exitance Coefficients (CCEC)			
0.0	.199 .199 .199	.170 .170 .170	.116 .116 .116	.067 .067 .067	.021 .021 .021	
1.0	.185 .165 .147	.158 .142 .126	.108 .097 .087	.062 .056 .051	.020 .018 .016	
2.0	.174 .140 .112	.149 .121 .097	.102 .084 .067	.059 .049 .040	.019 .016 .013	
3.0	.165 .122 .088	.142 .105 .076	.097 .073 .053	.056 .043 .032	.018 .014 .010	
4.0	.157 .108 .071	.135 .094 .062	.093 .065 .044	.054 .038 .026	.017 .012 .008	
5.0	.149 .098 .059	.128 .084 .052	.088 .059 .036	.051 .035 .022	.016 .011 .007	
6.0	.142 .089 .050	.122 .077 .044	.084 .054 .031	.049 .032 .018	.016 .010 .006	
7.0	.136 .082 .044	.117 .071 .038	.081 .050 .027	.047 .029 .016	.015 .010 .005	
8.0	.130 .076 .039	.112 .066 .034	.077 .046 .024	.045 .027 .014	.015 .009 .005	
9.0	.125 .071 .035	.107 .062 .030	.074 .043 .022	.043 .026 .013	.014 .008 .004	
10.0	.119 .067 .032	.103 .058 .028	.071 .041 .020	.042 .024 .012	.014 .008 .004	

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm										
NAME: ASD-WHB5A-A160DAC-20EM-4000K					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: ASD LIGHTING CORP					SUR.:0.36*0.25m			Shielding Angle:		
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	25.6	26.9	25.9	27.1	27.3	25.7	27.0	25.9	27.2	27.4
3H	26.3	27.5	26.6	27.7	28.0	26.3	27.5	26.6	27.7	28.0
4H	26.6	27.8	26.9	28.0	28.3	26.6	27.7	26.9	28.0	28.3
6H	26.9	28.0	27.2	28.3	28.5	26.9	28.0	27.3	28.3	28.6
8H	27.0	28.0	27.3	28.3	28.6	27.0	28.1	27.4	28.4	28.7
12H	27.0	28.0	27.4	28.3	28.6	27.1	28.1	27.5	28.4	28.7
4H 2H	25.8	26.9	26.1	27.2	27.4	25.8	27.0	26.2	27.2	27.5
3H	26.7	27.7	27.0	28.0	28.3	26.7	27.7	27.0	28.0	28.3
4H	27.2	28.1	27.5	28.4	28.7	27.1	28.0	27.5	28.4	28.7
6H	27.6	28.4	28.0	28.7	29.1	27.6	28.4	28.0	28.8	29.1
8H	27.7	28.5	28.1	28.8	29.2	27.8	28.5	28.2	28.9	29.3
12H	27.8	28.5	28.2	28.9	29.3	27.9	28.6	28.4	29.0	29.4
8H 4H	27.3	28.1	27.7	28.4	28.8	27.3	28.0	27.7	28.4	28.8
6H	27.9	28.5	28.3	28.9	29.3	27.9	28.5	28.4	28.9	29.4
8H	28.1	28.6	28.6	29.1	29.5	28.2	28.7	28.7	29.2	29.6
12H	28.2	28.7	28.7	29.1	29.6	28.4	28.9	28.9	29.3	29.8
12H 4H	27.3	28.0	27.8	28.4	28.8	27.3	28.0	27.7	28.4	28.8
6H	27.9	28.5	28.4	28.9	29.4	28.0	28.5	28.4	28.9	29.4
8H	28.2	28.6	28.7	29.1	29.6	28.3	28.7	28.8	29.2	29.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 0.7					+ 0.6 / - 0.7				
1.5H	+ 0.6 / - 0.5					+ 0.6 / - 0.5				
2.0H	+ 1.2 / - 0.7					+ 1.4 / - 0.8				

CIE Pub.117, 23258 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 10.9)

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:

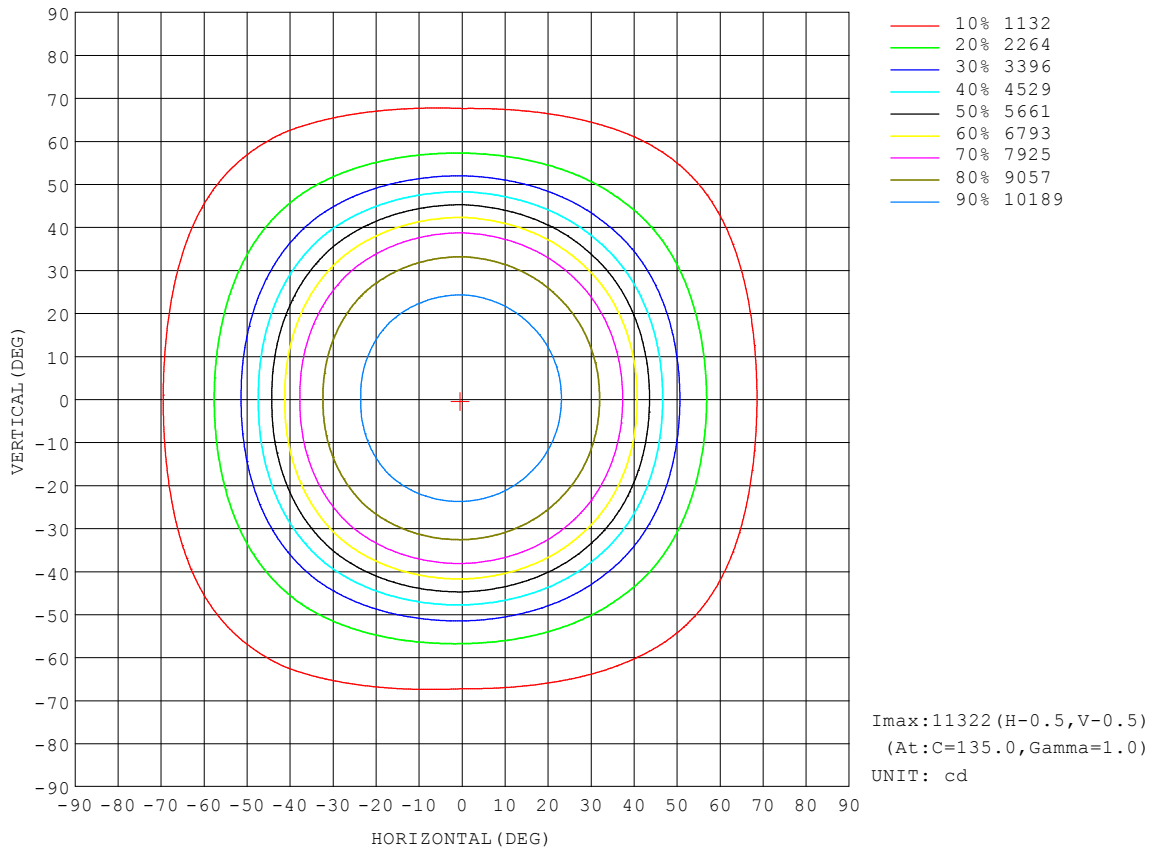
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	67	57	51	66	57	51	65	56	51	45
0.80	77	67	61	76	67	61	74	66	60	54
1.00	85	75	69	83	75	69	81	76	68	62
1.25	91	82	76	89	82	76	87	80	75	69
1.50	95	87	81	94	86	81	91	84	80	73
2.00	101	94	89	99	93	88	95	90	86	79
2.50	104	97	92	102	96	91	98	93	89	82
3.00	106	101	96	104	99	95	100	96	93	85
4.00	109	105	101	107	103	100	103	100	97	88
5.00	111	107	104	109	105	102	104	102	99	90
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:

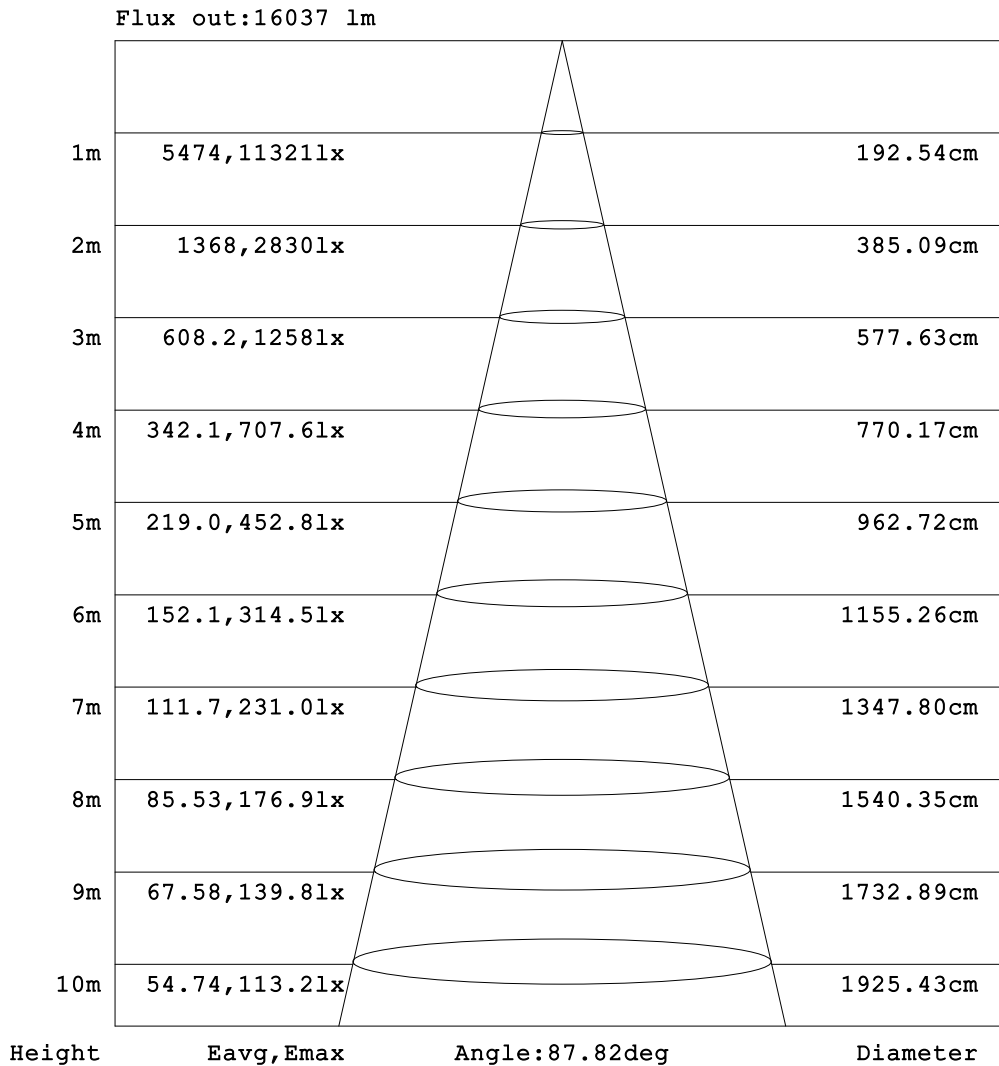


C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

AAI Figure

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:

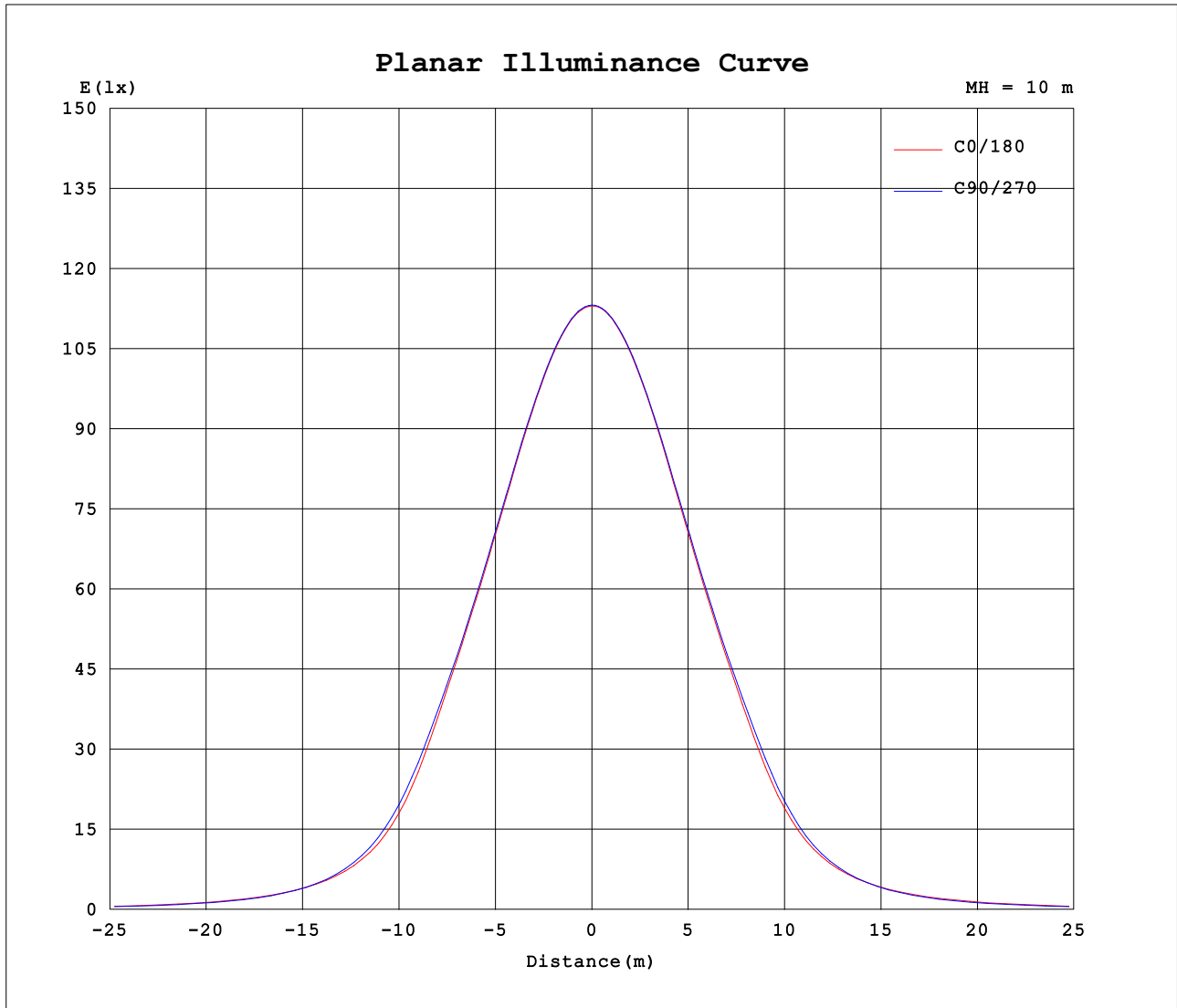


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:121.3V I:1.305A P:155.6W PF:0.9964 Freq:59.98Hz Lamp Flux:23257.7x1 lm		
NAME: ASD-WHB5A-A160DAC-20EM-4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ASD LIGHTING CORP	SUR.:0.36*0.25m	Shielding Angle:

Table--1

UNIT: x10cd

C (DEG) □ (DEG)	0	45	90	135	180	225	270	315										
0	1130	1131	1132	1132	1130	1131	1132	1132										
5	1125	1125	1126	1128	1126	1128	1128	1127										
10	1109	1109	1112	1115	1112	1115	1114	1111										
15	1084	1084	1087	1091	1088	1092	1091	1086										
20	1048	1047	1053	1056	1052	1058	1057	1049										
25	999	999	1006	1011	1004	1012	1012	1002										
30	936	936	946	950	942	952	952	939										
35	850	851	864	870	858	874	874	855										
40	706	713	740	746	723	754	757	719										
45	511	519	557	564	537	571	575	525										
50	355	356	382	391	373	396	395	361										
55	255	247	259	271	267	273	268	251										
60	188	176	179	193	197	193	185	180										
65	140	131	129	143	146	142	132	134										
70	104	101	97.7	110	110	110	99.3	103										
75	74.1	74.3	73.9	82.9	80.0	83.0	75.1	75.7										
80	45.8	47.2	50.4	55.5	51.5	55.8	51.6	48.0										
85	16.6	18.0	24.3	27.5	21.9	27.8	26.0	18.9										
90	0.78	0.81	0.81	1.02	0.89	1.07	0.83	0.84										
95	0.99	1.03	1.04	0.97	1.02	1.02	1.07	1.09										
100	1.27	1.33	1.34	1.25	1.33	1.34	1.41	1.42										
105	1.64	1.70	1.72	1.61	1.73	1.73	1.82	1.83										
110	2.06	2.13	2.17	2.03	2.17	2.18	2.28	2.28										
115	2.54	2.62	2.66	2.51	2.66	2.66	2.77	2.77										
120	3.07	3.15	3.20	3.04	3.20	3.18	3.32	3.30										
125	3.64	3.71	3.77	3.60	3.77	3.74	3.88	3.87										
130	4.21	4.27	4.35	4.15	4.35	4.31	4.47	4.42										
135	4.78	4.81	4.89	4.71	4.93	4.86	5.03	4.98										
140	5.28	5.33	5.40	5.24	5.45	5.40	5.56	5.50										
145	5.76	5.83	5.88	5.77	5.96	5.95	6.06	6.03										
150	6.24	6.31	6.37	6.25	6.46	6.44	6.57	6.53										
155	6.76	6.83	6.89	6.72	6.99	6.96	7.10	7.06										
160	7.29	7.35	7.43	7.24	7.55	7.48	7.64	7.61										
165	7.84	7.87	7.96	7.77	8.07	8.00	8.15	8.11										
170	8.33	8.31	8.40	8.24	8.49	8.41	8.56	8.49										
175	8.72	8.67	8.76	8.62	8.81	8.71	8.84	8.75										
180	8.92	8.83	8.93	8.83	8.92	8.84	8.93	8.83										

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:15DEG
 Operators:lianghaizhu
 Test Date:2022-12-31

□ Range: 0 - 180DEG
 □ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.364
 Humidity:56%
 Test Distance:6.500m [K=1.0000]
 Remarks: